CLAIMS

1. An electrical connector comprising:

a first surface formed from a first electrically conductive material and embedded on said surface a plurality of spaced apart particles of a second electrically conductive material, said particles having a nominal pre-embedded diameter of greater than 50 microns and forming a discontinuous layer raised on said surface with said second electrically conductive material being other than said first electrically conductive material.

2. The electrical connector of claim 1 wherein said first surface is made from a metal comprising at least one of copper, aluminum, brass, stainless steel or tungsten.

3. The electrical connector of claim 1 wherein said particles comprise at least one of tin, silver, gold, platinum, metal alloys, or mixtures thereof.

4. The electrical connector of claim 3 wherein said particles comprise tin or mixtures of tin and another metal.

5. The electrical connector of claim 4 wherein said particles comprise alloys of at least one of tin-copper, tin-silver, or tin-lead.

6. The electrical connector of claim 1 wherein said particles have a nominal pre-embedded diameter of greater than 75 microns.

7. The electrical connector of claim 1 wherein said electrical connector has a contact resistance of less than 10 milli-Ohms.

8. The electrical connector of claim 1 wherein said electrical connector has a contact resistance of less than 2 milli-Ohms.

9. The electrical connector of claim 1 wherein said embedded particles have an aspect ratio of 5 to 1.

10. The electrical connector of claim 1 wherein said embedded particles have an average height of equal to or less than 25 microns above the first surface.

11. An electrical connection comprising:

a first connector having a first surface formed from a first electrically conductive material and embedded on said surface a plurality of spaced apart particles of a second electrically conductive material, said particles having a nominal pre-embedded diameter of greater than 50 microns and forming a discontinuous layer raised on said surface with said second electrically conductive material being other than said first electrically conductive material; and

a second connector releasably engaged with the first connector, thereby forming said electrical connection.

12. The electrical connection of claim 11 wherein said first surface is made from a metal comprising at least one of copper, aluminum, brass, stainless steel or tungsten.

13. The electrical connection of claim 11 wherein said particles comprise at least one of tin, silver, gold, platinum, metal alloys, or mixtures thereof.

14. The electrical connection of claim 13 wherein said particles comprise tin or mixtures of tin and another metal.

15. The electrical connection of claim 14 wherein said particles comprise alloys of at least one of tin-copper, tin-silver, or tin-lead.

16. The electrical connection of claim 11 wherein said particles have a nominal pre-embedded diameter of greater than 75 microns.

17. The electrical connection of claim 11 wherein said electrical connector has a contact resistance of less than 10 milli-Ohms.

18. The electrical connection of claim 11 wherein said electrical connector has a contact resistance of less than 2 milli-Ohms.

19. The electrical connection of claim 11 wherein said embedded particles have an aspect ratio of 5 to 1.

20. The electrical connector of claim 11 wherein said embedded particles have an average height of equal to or less than 25 microns above the first surface.

21. A process for forming an electrical connector comprising the steps of:

a. entraining a plurality of electrically conductive particles into a gas stream having a temperature of from 100°Celsius to 550° Celsius, thereby imparting kinetic and thermal energy to said particles; and

b. directing said gas stream and said particles through a nozzle toward an electrically conductive surface while moving said surface in relation to said nozzle at a pre-selected speed, thereby embedding said

particles onto said surface and forming a discontinuous layer of spaced particles on said surface.

22. The process of claim 21 wherein step a) comprises entraining a plurality of electrically conductive particles having a particle size of equal to or greater than 50 microns into said gas stream.

23. The process of claim 21 wherein step a) comprises entraining a plurality of electrically conductive particles having a particle size of equal to or greater than 75 microns into said gas stream.

24. The process of claim 21 wherein step b) further comprises directing said gas stream and said particles through a nozzle and accelerating said particles to a velocity between 300 to 1000 meters per second.

25. The process of claim 21 wherein step b) further comprises moving said surface in relation to said nozzle at a speed of from 1 meter per second to 10 meters per second.

26. The process of claim 21 wherein step a) further comprises selecting as the electrically conductive surface at least one of copper, aluminum, brass, stainless steel and tungsten.

27. The process of claim 21 wherein step a) further comprises selecting as the electrically conductive particles at least one of tin, silver, gold, platinum, metal alloys, or mixtures thereof.

28. The process of claim 27 further comprising selecting as the electrically conductive particles tin or mixtures of tin and another metal.

29. The process of claim 28 further comprising selecting as the electrically conductive particles alloys of at least one of tin-copper, tin-silver, or tin-lead.

30. The process of claim 21 wherein step a) further comprises entraining a plurality of electrically conductive particles into a gas stream having a temperature of from 100°Celsius to 300° Celsius.

31. The process of claim 21 wherein step a) further comprises entraining a plurality of electrically conductive particles into a gas stream having a temperature of 200°Celsius.